

Fremont's Opportunities in Smart Grid

With over 35 'clean technology' companies in Fremont, the City of Fremont has long been marketing this sector as a strength. However, as these industries evolved, it became apparent that further dissection of this cluster was needed to understand the full range of companies and technologies that comprise it and how Fremont came to be a clean tech capital.

In May of 2013, Christine Hertzog, author of the Smart Grid Dictionary, completed research on Fremont's 'clean technology' cluster to explain its evolution and the role it plays in the broader smart grid value chain. Her findings revealed that Fremont has significant company representation across every segment of this value chain: generation, transmission, distribution and consumption. Notable technologies include communications, semiconductor, solar, LED, energy storage, and electric vehicles.





Christine's research points out that Fremont's strong foundation in the semiconductor industry is of particular importance. Semiconductors are widely considered the 'DNA' for the smart grid, serving as the underlying technology in all the applications listed above. And trends suggest a positive projection for Fremont as semiconductors are increasingly used both in smart grid components/applications and electricity-consuming devices.

This analysis makes another interesting finding, which is that Fremont's leading role in the smart grid only stands to support another vital part of our economy—advanced manufacturing. While many things have changed about manufacturing over the years, the need for a significant amount of reliable power has remained. With over 100 manufacturing firms in Fremont today, many of whom are actually re-shoring processes from overseas, the City of Fremont sees its role as a leader in smart grid technologies as being completely complimentary with its long term strategy to promote advanced manufacturing.

The following graphics depict Fremont's smart grid value chain and ecosystem.

Fremont's Smart Grid Value Chain

The following graph illustrates the technologies that play a role in each level of the smart grid supply chain and specifies how many of each company type has been identified in Fremont.

Generation	Transmission	Distribution	Consumption
			
Generation and energy storage across the supply chain			
Communications/IEDs			
Energy Efficiency Technologies			
Technology <ul style="list-style-type: none"> • Photo-voltaics • Inverters • Energy storage Ecosystem strength <ul style="list-style-type: none"> • Solar (16) • Semiconductor (13) • Energy storage (6) 	Technology <ul style="list-style-type: none"> • Communications • Energy storage Ecosystem strength <ul style="list-style-type: none"> • Communications (12) • Energy storage (6) • Semiconductor (13) 	Technology <ul style="list-style-type: none"> • Communications • Photo-voltaics • Energy storage Ecosystem strength <ul style="list-style-type: none"> • Solar (16) • Semiconductor (13) • Energy storage (6) • Communications (12) 	Technology <ul style="list-style-type: none"> • LEDs • EVs • Photo-voltaics • Energy storage Ecosystem strength <ul style="list-style-type: none"> • Solar (16) • LED (10) • Energy storage (6) • Semiconductor (13) • Communications (12)

() = # of companies in Fremont

Fremont's Smart Grid Ecosystem

This is a graphic depiction of the semiconductor as the building block of so many 'clean technologies', and consequently, the DNA of the smart grid. Fremont's historically strong concentration of semiconductor companies has allowed it to evolve into a leading City for clean tech today.

